FONTHAM, E.T.H., CORREA, P., WU-WILLIAMS, A., REYNOLDS, P., GREENBERG, R.S., BUFFLER, P.A., CHEN, V.W., BOYD, P., ALTERMAN, T., AUSTIN, D.F., LIFF, J., AND GREENBERG, S.D., "LUNG CANCER IN NONSMOKING WOMEN: A MULTICENTER CASE-CONTROL STUDY," CANCER EPIDEMIOLOGY, BIOMARKERS & PREVENTION 1: 35-43, 1992

Study Overview

- One of the largest U.S. case-control studies ever conducted, with 420 cases, 351 colon cancer controls, and 780 population controls.
- The study is on-going; reported results are for the first three years of the study.
- According to the authors, the study was "designed to minimize some of the methodological problems which have been of concern in previous studies of environmental tobacco smoke and lung cancer."
- Although this was the stated purpose of the study, certain data collected to minimize these methodological problems have not been included in the results reported to date.
- Results are reported in terms of "odds ratios", that is, a ratio determined by comparing the incidence of a disease in persons who report exposure to an agent to the incidence of that disease in persons who supposedly have not been exposed to the agent. An odds ratio of 1.0 indicates no increased risk, i.e., the incidence of disease is the same in both groups. An odds ratio of greater than 1.0 does not mean that the study results achieved statistical significance.
- Authors analyzed numerous subgroups within the study; this is commonly called "data-dredging" and increases the probability that some statistically significant odds ratios will be reported in some subgroups due to chance alone, rather than as an indication of increased risk. More than 65 risk estimates were presented in this study.

Reported Results

- This study reported no overall statistically significant increased risk as originally reported. When the standard statistical procedures used by the study authors were lowered by EPA in its review, the study reached overall statistical significance. The authors suggested their data "provide additional evidence in favor of a causal relationship between exposure to ETS

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and lung cancer in women who have never used tobacco themselves."

- Based on an index of ever having been exposed to spousal smoking during adulthood, an odds ratio of 1.21 was presented, which is statistically significant. However, two other spousal smoking risk estimates for colon cancer controls and populations controls, did not achieve statistical significance.

- Odds ratios for exposure during childhood to smoking by father or mother were presented. None of the risk estimates were statistically significant.

- The authors reported a statistically significant odds ratio of 1.34 for having reported workplace exposure to ETS. This is in contrast to the conclusions of most other studies, which report no statistically significant increased risk from exposure to ETS in the workplace.

- A large number of subgroup analyses were conducted in this study, indicating "data-dredging."

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